IN THE CLAIMS:

A. Please amend claims 1, 9, 13, 14, 15 and 16 as follows:

1. (Amended) A method of eliminating sidelobes in a communication channel between a base station and a mobile station, comprising [the steps of]:

(a) generating control signals and data signals within the communication channel, said control signals having a first sequence of L-bits and a second sequence of L-bits;

(b) autocorrelating the first and second sequences to generate first and second autocorrelated values;

(c) cross-correlating the first and second sequences to generate first and second cross-correlated values; and

(d) combining the first and second autocorrelated values and the first and second cross-correlated values.

9. (Amended) The method of claim 6, wherein said control signals include a third sequence of L-bits and a fourth sequence of L-bits, and further comprising [the steps of]:

autocorrelating the third and fourth sequences to generate third and fourth autocorrelated values; and

cross-correlating the third and fourth sequences to generate third and fourth cross-correlated values, wherein the combining step comprises combining the first, second, third and fourth autocorrelated values and the first, second, third and fourth cross-correlated values.

13. (Amended) A method of establishing a communication channel, the method comprising [the steps of]:

generating a plurality of frames; and

generating a 15 slots for each frame, each slot having a pilot signal of N-bits and a corresponding bit in each slot forming a word of 15 sequence of pilot bits such that there is N number of words, wherein the number of bit values of two pilot bits which are the same between two adjacent words from 1 to 15 slots minus the number of bit values of two pilot bits which are different between the two adjacent words from 1 to 15 is +1 or –1.

14. (Amended) A method of establishing a communication channel having at least one of frame synchronization and channel estimation, the method comprising [the steps of]:

generating a plurality of frames; and

generating a L-number of slots for each frame, each slot having a pilot signal of N-bits and a corresponding bit in each slot forming a word of L-sequence of pilot bits such that there is N number of words, wherein each of a prescribed number of N number of words have a first prescribed number (b_0) of bit values equal to "0" and a second prescribed number (b_1) of bit values equal to "1" such that b_1-b_0 is +1 or −1, wherein

a pair of the prescribed number of N number of words is cross-correlated, and a pair of the prescribed number of N number of words is autocorrelated, such that maximum peaks at zero and middle time shifts, which are equal to each other and opposite in polarity, are formed.

15. (Amended) A method of reducing sidelobes, comprising [the steps of]:

generating a plurality of frame words, each frame word having a plurality of bits;

performing autocorrelation functions on a pair of frame words to generate a pair of autocorrelated value sets;

preforming cross-correlation function on a pair of frame words to generate a pair of cross-correlated value sets; and

combining the pair of autocorrelated value set and cross-correlated value sets such that two peak values equal in magnitude and opposite in polarity are achieved at zero and middle time shifts.

16. (Amended) A method of generating pilot signals of a prescribed pattern within a frame having 15 slots, comprising [the steps of]:

generating N pilot bits for each slot; and

forming N words of 15-bit based on above step, wherein each of a prescribed number of N words has a first prescribed number b_0 of bit values of "0" and a second prescribed number b_1 of bit values of "1", such that b_1-b_0 is +1 or -1.

Clean Set of Amended Claims

1. (Amended) A method of eliminating sidelobes in a communication channel between a base station and a mobile station, comprising:

(a) generating control signals and data signals within the communication channel, said control signals having a first sequence of L-bits and a second sequence of L-bits;

(b) autocorrelating the first and second sequences to generate first and second autocorrelated values;

(c) cross-correlating the first and second sequences to generate first and second cross-correlated values; and

(d) combining the first and second autocorrelated values and the first and second ~~cross-correlated values.~~

9. (Amended) The method of claim 6, wherein said control signals include a third sequence of L-bits and a fourth sequence of L-bits, and further comprising:

autocorrelating the third and fourth sequences to generate third and fourth autocorrelated values; and

cross-correlating the third and fourth sequences to generate third and fourth

cross-correlated values, wherein the combining step comprises combining the first, second, third and fourth autocorrelated values and the first, second, third and fourth cross-correlated values.

13. (Amended) A method of establishing a communication channel, the method comprising:

generating a plurality of frames; and

generating a 15 slots for each frame, each slot having a pilot signal of N-bits and a corresponding bit in each slot forming a word of 15 sequence of pilot bits such that there is N number of words, wherein the number of bit values of two pilot bits which are the same between two adjacent words from 1 to 15 slots minus the number of bit values of two pilot bits which are different between the two adjacent words from 1 to 15 is +1 or -1.

14. (Amended) A method of establishing a communication channel having at least one of frame synchronization and channel estimation, the method comprising:

generating a plurality of frames; and

generating a L-number of slots for each frame, each slot having a pilot signal of N-bits and a corresponding bit in each slot forming a word of L-sequence of pilot bits such

that there is N number of words, wherein each of a prescribed number of N number of words have a first prescribed number (b_0) of bit values equal to "0" and a second prescribed number (b_1) of bit values equal to "1" such that b_1-b_0 is +1 or −1, wherein

a pair of the prescribed number of N number of words is cross-correlated, and a pair of the prescribed number of N number of words is autocorrelated, such that maximum peaks at zero and middle time shifts, which are equal to each other and ~~opposite in polarity~~, are formed.

15. (Amended) A method of reducing sidelobes, comprising:

generating a plurality of frame words, each frame word having a plurality of bits;

performing autocorrelation functions on a pair of frame words to generate a pair of autocorrelated value sets;

preforming cross-correlation function on a pair of frame words to generate a pair of cross-correlated value sets; and

combining the pair of autocorrelated value set and cross-correlated value sets such that two peak values equal in magnitude and opposite in polarity are achieved at zero and middle time shifts.

16. (Amended) A method of generating pilot signals of a prescribed pattern within a frame having 15 slots, comprising:

generating N pilot bits for each slot; and

forming N words of 15-bit based on above step, wherein each of a prescribed number of N words has a first prescribed number b_0 of bit values of "0" and a second prescribed number b_1 of bit values of "1", such that b_1-b_0 is +1 or -1.

B. Please add new claims 18-33 as follows:

18. (New) Pilot sequences for at least one of radio frame synchronization and channel estimation of a communication system comprising:

a first code sequence having a significant autocorrelation value at a matched point of a correlation period and having an insignificant autocorrelation value at the other points excluding the matched point; and,

a second code sequence having the same autocorrelation characteristic as the first selected code sequence, wherein

the first and second code sequences have a significant cross-correlation values having polarity opposite to said significant autocorrelation value at a specific delay point.

19. (New) The pilot sequence of claim 17, wherein a difference between the number of zero's and the number of one's in each sequence is 1.

20. (New) The pilot sequences of claim 17, wherein said second sequence is made by shifting the first code sequence by a certain bit length and by inverting the first code sequence.

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21. (New) The pilot sequences of claim 19, wherein said each code sequence comprises 15 bits.

22. (New) Pilot sequences for at least one of frame synchronization and channel estimation of a wireless communication system comprising:

a first binary code sequence having a maximum autocorrelation value at a specific delay point of a correlation period and having a minimum autocorrelation value at the other points excluding the specific delay point; and

a second binary code sequence having the same autocorrelation characteristic as the first code sequence, wherein

the first and second binary code sequences have maximum autocorrelation values at the same specific delay point.

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23. (New) The pilot sequences of claim 22, wherein a difference between the number of zero's and the number of one's in each sequence is 1.

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24. (New) The pilot sequences of claim 22, wherein said second binary code sequence is made by shifting the first binary code sequence by a certain bit length and by inverting the shifted first binary code sequence.

25. (New) The pilot sequences of claim 23, said each code sequence is 15 bits.

26. (New) A method for at least one of radio frame synchronization and channel estimation of a communication system comprising:

(a) receiving control signals and data signals from the communication channel, said control signals having binary code sequences;

(b) comparing said code sequences with the reference sequences; and

(c) confirming radio frame synchronization, wherein said binary code sequences include a first code sequence having a significant autocorrelation value at a matched point of a correlation period and having an insignificant autocorrelation value at the other points excluding the matched point, a second code sequence having the same autocorrelation characteristic as the first selected code sequence, the first and second code sequences having a significant cross-correlation values and having polarity opposite to said significant autocorrelation value at a specific delay point.

27. (New) The method of claim 26, wherein a difference between a number of zero's and a number of one's in each sequence is 1.

28. (New) The method of claim 26, wherein said second code sequence is made by shifting the first code sequence by a certain bit length and by inverting the shifted first code sequence.

29. (New) The method of claim 27, said each code sequence comprises 15 bits.

30. (New) The method for at least one of radio frame synchronization and channel estimation of a communication system comprising:

(a) receiving control signals and data signals from a communication channel, said control signals having binary code sequences;

(b) comparing said binary code sequences with reference sequences; and

(c) confirming at least one of radio frame synchronization and channel estimation, wherein said binary code sequences include a first binary code sequence having a maximum autocorrelation value at a specific delay point of a correlation period and having a minimum autocorrelation value at the other points excluding the specific delay point, and a second binary code sequence having the same autocorrelation characteristic as the first code sequence wherein, the first and second binary code sequences have maximum autocorrelation values at the same specific delay point.

31. (New) The method of claim 30, wherein a difference between a number of zero's and a number of one's in each sequence is 1.

32. (New) The method of claim 30, wherein said second binary code sequence is made by shifting the first binary code sequence by a certain bit length and by inverting the shifted first binary code sequence.

33. (New) The method of claim 31, wherein each code sequence comprises 15 bits.

REMARKS

Claims 1-33 are pending. By this Amendment, claims 1, 9, 13, 14, 15 and 16 are amended to delete the phrase "the steps of" in the preamble, and new claims 18-33 of different scope are added. Further, the specification has been amended to indicate the serial number of the parent application.

Favorable consideration and prompt allowance are earnestly solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of